CLAIMS:

1. Method for controlling a disc drive apparatus (1), the disc drive apparatus (1) comprising:

scanning means (30) for scanning a record track of a disc (2), said scanning means (30) comprising at least one read/write element (34) to be positioned with respect to the disc (2), and at least one detector (35) for generating a read signal (S_R);

actuator means (50) for controlling the positioning of said at least one read/write element (34);

a control circuit (290) for receiving said read signal (S_R) and generating at least one actuator control signal (S_{CR}) on the basis of at least one signal component of said read signal (S_R), the control circuit (290) having at least one variable gain (γ);

said control circuit (290), said actuator means (50), said read/write element (34), and said detector (35) defining a control loop (200) having a critical frequency (ω_{CP});

the method comprising the steps of:

for signal components having a frequency in a predefined range corresponding to said critical frequency (ω_{CP}), selectively setting the gain (γ) to a value lower than a value for signal components having a frequency outside said range.

2. Method according to claim 1, wherein said gain (γ) has a constant value (γ_C) for signal components having a magnitude below a predefined shock threshold (R_T);

wherein, for signal components having a magnitude above said predefined shock threshold (R_T), said gain (γ) is increased by a variable value (γ_V);

wherein said gain increase (γ_V) is lower for signal components having a frequency inside said predefined range as compared to the gain increase (γ_V) for signal components having a frequency outside said range.

3. Method according to claim 2, wherein said constant value (γ_C) corresponds to a linear control design.

4. Method according to claim 1, comprising the steps of:
receiving said read signal (S_R);
dynamically filtering said read signal (S_R);
applying a first gain (γ_C) to filtered signal components having a magnitude below a predefined shock threshold (R_T), and applying a second gain ($\gamma_C + \gamma_V$) higher than said first gain (γ_C) to filtered signal components having a magnitude above said predefined shock threshold (R_T).

5. Method according to claim 4, wherein the step of dynamically filtering comprises the step of selectively suppressing signal components having a frequency in the proximity of said critical frequency (ω_{CP}).

6. Method according to claim 4, wherein said gain increase (γ_V) is proportional to the magnitude of the corresponding filtered signal components.

7. Method according to claim 1, wherein said actuator means (50) comprises a radial actuator (51), and wherein said variable gain (γ) is a gain in the radial control loop for controlling said radial actuator (51).

8. Method according to claim 1, wherein said actuator means (50) comprises a focal actuator (52), and wherein said variable gain (γ) is a gain in the focal control loop for controlling said focal actuator (52).

9. Method according to claim 1, wherein said actuator means (50) comprises a tilt actuator (53), and wherein said variable gain (γ) is a gain in the tilt control loop for controlling said tilt actuator (53).

10. Control circuit (290) for use in a disc drive apparatus (1), comprising:
an input (91) for receiving a read signal (S_R) from a detector (35);
at least one output (93) for providing at least one actuator control signal (S_{CR}) on the basis of at least one signal component (REn) of said read signal (S_R);

the control circuit (290) having a variable gain (γ);
the control circuit (290) being adapted to set its gain (γ) depending on whether or not shocks are experienced, and/or depending on the magnitude of shocks;
the control circuit (290) comprising a dynamic filter (297) which attenuates signal components having a frequency within a predefined frequency range.

11. Control circuit according to claim 10, wherein the said dynamic filter (297) comprises a notch filter.

12. Control circuit according to claim 10, wherein the said dynamic filter (297) comprises a low-pass filter.

13. Control circuit according to claim 10, comprising a variable amplifier (299) which comprises:
a constant amplifier part (299A) providing a constant gain (γ_C); and
a variable amplifier part (299B) providing a variable gain (γ_V);
wherein said dynamic filter (297) is arranged at the input of said variable amplifier part (299B).

14. Disc drive apparatus (1) comprising:
scanning means (30) for scanning a record track of a disc (2), said scanning means (30) comprising at least one read/write element (34) to be positioned with respect to the disc (2), and at least one detector (35) for generating a read signal (S_R);
actuator means (50) for controlling the positioning of said at least one read/write element (34);
a control circuit (290) for receiving said read signal (S_R) and generating at least one actuator control signal (S_{CR}) on the basis of at least one signal component of said read signal (S_R), the control circuit (290) having at least one variable gain (γ);
said control circuit (290), said actuator means (50), said read/write element (34), and said detector (35) defining a control loop (200) having a critical frequency (ω_{CP});
the control circuit (290) being adapted to perform the method of claim 1.

15. Disc drive apparatus (1) comprising:
scanning means (30) for scanning a record track of a disc (2), said scanning means (30) comprising at least one read/write element (34) to be positioned with respect to the disc (2), and at least one detector (35) for generating a read signal (S_R);
actuator means (50) for controlling the positioning of said at least one read/write element (34);
a control circuit (290) according to claim 10 for receiving said read signal (S_R) and generating at least one actuator control signal (S_{CR}) on the basis of at least one signal component of said read signal (S_R), the control circuit (290) having at least one variable gain (γ);
said control circuit (290), said actuator means (50), said read/write element (34), and said detector (35) defining a control loop (200) having a critical frequency (ω_{CP}).

16. Disc drive apparatus according to claim 15, wherein said predefined frequency range of said dynamic filter (297) corresponds to said critical frequency (ω_{CP}) of said control loop (200).

17. Disc drive apparatus according to claim 14 or 15, wherein said actuator means (50) is designed for controlling a radial position of said at least one read/write element (34) and/or for controlling an axial position of said at least one read/write element (34) and/or for controlling an tilt position of said at least one read/write element (34).

18. Disc drive apparatus according to claim 14 or 15, wherein said detector (35) comprises an optical detector.